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Psychological Discriminants Of Binge-Drinking Among Female College Students

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PSYCHOLOGICAL DISCRIMINANTS OF BINGE-DRINKING AMONG FEMALE

COLLEGE STUDENTS

BY

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Requirements of the Degree of Doctor of Philosophy
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ABSTRACT

PSYCHOLOGICAL DISCRIMINANTS OF BINGE-DRINKING AMONG FEMALE COLLEGE STUDENTS

Binge-drinking, consuming five or more drinks of alcohol in a sitting, is problematic for college women. One hundred twenty-three college women completed the Core Alcohol And Drug Survey (CORE), the Children Of Alcoholics Screening Test, the Beck Depression Inventory, the Rosenberg Self-Esteem Inventory, and the Bem Sex-Role Inventory. The CORE was utilized to determine frequency and amount of drinking behavior. The groups examined in this study were as follows: (a) Non-drinker, (b) Drinker, (c) Binge Drinker, and (d) Frequent Binge Drinker.

Being a Child of an Alcoholic predicted membership in the Drinker group, and was negatively associated with being a Non-drinker. Discriminant function analysis indicated that Children of Alcoholics were likely to be psychologically masculine and reported more depression and lower self-esteem than the other participants in the study.

The work of Perkins, Berkowitz, and others in the area of norm misperception was supported: 75 of the study participants reported no alcohol use in the past two weeks. Research should continue in this area to strengthen this critical mass of students' position and reduce binge drinking.

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DEDICATION

To my significant other, whom I choose to call my husband, Albert, thank you for you tireless efforts in hammering this thing out. You attention to detail is only exceeded by my total lack of attention to detail. We are quite the pair. You are my best friend and my only husband ever.

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My best friend in the entire world is Jennifer Porter Scisco actually read Chapter 4 and was of the utmost help to me, let's be old ladies together!

To my children: Sandy (1968) and Chip and Chase, Jason (1971) and Sarah, Batya (1977) and Aaron, and my beloved baby Etana (1981). I love telling people that I had babies in the 60s , 70s, and 80s. Thanks for your patience.

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CHAPTER I

Introduction

Background of the Problem

Across many universities and colleges alcohol, use is considered a rite of passage, yet for many college students alcohol abuse is the number one campus-life problem (Chronin, 1991; Cronin & Ballenger, 1991; Cutler & Radford, 1999; Gleason, 1994; Hurlbut & Sher, 1992; Lo & Globetti, 1995; Meilman, 1992; Presley, et al., 1992; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994). According to the Alcohol Alert (1995) an overwhelming majority of college students use alcohol (88%), including those for whom alcohol use is illegal (Wechsler, Isaac, Gordstein, & Sellers, 1994). Among the college students who do consume alcohol, nearly half or approximately three million college students across the country reportedly binge-drink (Wechsler, Davenport, et al., 1994; Wechsler, Dowdall, Maenner, Gledhill-Hoyt, & Lee, 1997). Although the word "binge" has several connotations and denotations in society, binge-drinking has a specific definition in the research literature (Core Institute, 1996; Wechsler, Davenport, et al., 1994; Wechsler, Dowdall, Maenner, et al., 1997; Wechsler, Moeykens, Davenport, Castillo, & Hansen, 1995).

Many researchers define binge-drinking as consuming a specific amount of alcohol in a specific amount of time, often with the intention of becoming drunk (Core Institute, 1996; Newman, Crawford, & Nellis, 1991). Binge-drinking constitutes consuming five or more alcoholic drinks for men and four or more for women in a short period of time (Wechsler, Dowdall, Maenner, et al., 1997; Wechsler, Moeykens, et al., 1995). For both male and female college students, binge-drinking continues to be a pervasive campus life

problem that is often associated with numerous negative outcomes which have been quantified nationally in the past decade (Presley, et al., 1992; Quigley & Marlatt, 1996).

Alcohol on college campuses is a factor in 40% of all academic problems and 28% of all dropouts. Students who regularly participate in binge-drinking are often at risk for serious negative consequences such as: (a) violent encounters, (b) physical assault, (c) sexual harassment, (d) unwanted sexual contact, (e) rape, and (f) fatal injuries (Core Institute, 1996). Binge-drinking behavior, which is common especially in fraternities and sororities, has led to death among many young people (Hammel, 1998; McCormick & Kalb, 1998).

Similar to the problem of second-hand smoke, binge-drinking affects students who do not drink (Wechsler, Moeykens, et al., 1995). On campuses where more than 70% of students report binge-drinking, 87% of the total student population have experienced one or more problems because of their peers' binge-drinking (Wechsler, Dowdall, Davenport, DeJong, 1997; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994; Wechsler, Dowdall, Maenner, et al., 1997; Wechsler, Moeykens, et al., 1995).

Gender differences in alcohol use among college students. Although men report drinking more often and in heavier amounts than women in college (Pullen, 1994; Quigley & Marlatt, 1996), the number of college women who binge-drink has more than tripled in the last ten years, rising from 10% to 35% (Wechsler, Dowdall, Davenport, et al., 1997; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994; Wechsler, Dowdall, Maenner, et al., 1997; Wechsler, Moeykens, et al., 1995).

Women who report drinking four or more drinks in a row generally report the same frequency of alcohol-related problems as do men who report drinking five or more drinks

in a row (Wechsler, Dowdall, Maenner, et al., & Lee, 1997). Bongers, Van De Goor, Van Oers, and Garretsen (1998) examined gender differences in alcohol-related problems and found a high prevalence of alcohol-related problems among women, relative to their low prevalence of excessive drinking. While the Bongers et al. study was conducted in the Netherlands utilizing a wide range of participants within the age range of 16-69 years, they did find that in the binge-drinking group, women were as likely as men to report alcohol-related problems.

Binge-drinking among college women. For college women, binge-drinking presents severe negative consequences such as rape, the risk of sexually transmitted diseases, and unplanned pregnancies (Tibbetts, Herz, 1996). Although the prevalence and severity of binge-drinking among college women has increased over the years (Wechsler, Dowdall, Maenner, et al., 1997), little is known about why some college women become active binge-drinkers, while others do not. The present study asks: (a) what distinguishes college women who binge-drink from college women who do not drink; and (b) is binge-drinking among college women a dysfunctional attempt for some women to cope with depression, low self-esteem, or growing up in an alcoholic family? Since less is known in general about women and alcohol (Wilke, 1994), examining the psychological variables that may be associated with binge drinkers may lead to better identification of women with potential alcohol abuse problems, at an earlier age. Determining if specific predictor variables distinguish these women as potential problem drinkers is of value to health and mental health providers on college campuses.

Adult Children of Alcoholics. Adult Children of Alcoholics (COA) status may be a predictor variable associated with binge-drinking among college women (Mintz, Kashubeck, & Tracy, 1996; Perkins & Berkowitz, 1991; Russell, Henderson, & Blume, 1985). Although COA populations have been the subjects of numerous studies, a link has yet to be ascertained between COA status and binge-drinking among college women. On the other hand, research has supported a link between COA status and alcoholism among men. Derbyshier (1997) reported that men who are sons of alcoholic fathers are eight times as likely to become alcoholics themselves. Baker and Stephenson (1995) found that while, in general, no differences were identified between COA men and non-COA men, COA women were found to be more flexible, impulsive, and pessimistic than control women. The researchers were able to correctly classify 77.6% of women, indicating that several more positive characteristics emerged: (a) being easygoing, (b) independent, (c) self-assured, and (d) being self-directed are associated with status as a COA for women. These results seem to suggest that women COAs are an identifiable group and it may be possible to determine if a link between being a member of this group and being a member of the binge-drinking or frequent binge-drinking groups can be demonstrated. No such link has been demonstrated for women with an alcoholic parent or even two alcoholic parents. More specifically, there appears to be no research investigating the relationship between having an alcoholic mother and daughters' binge-drinking.

This investigator seeks to determine if growing up in an alcoholic family system might predispose offspring to participate in binge-drinking, while in college. Since COA women are identifiable with measures, such as the Children of Alcoholics Screening Test

(CAST), it may be possible to correlate this status with the level of binge-drinking reported by the same women on the Core Alcohol and Drug Survey. Assessing the relationship between these two variables, COA status and binge-drinking will enable clinicians to intervene with this difficult to reach population, binge-drinking college women.

Depression. Another psychological variable relevant to women is depression. Women report more depression than men (Nolen-Hoeksema, 1990; Sprock, 1997). Depression has long been associated with alcoholism (Choquette, 1994). Alcohol and drugs play a part in minority adolescent suicide attempts (Jones, 1997). Factors associated with the development of depression in college students, such as family relationship quality, parental alcohol use, and self-esteem have been studied (Kashubeck & Christensen, 1995). In the Kashubeck and Christensen study student alcohol use did not significantly predict student depression. However, the authors interpreted this as a reflection of the amount of drinking that is considered normative in a college population. They did not specifically examine binge drinkers. Perhaps these factors associated with the development of depression are related to the development of binge-drinking in women college students.

Self-Esteem. There continues to be conflicting research findings on the role of self-esteem and binge-drinking. Alcohol use and abuse among high school students has been found to be positively associated with depression (as expected), and high self-esteem (which was not expected) (DeSimone, Murry, and Lester, 1994). Would this be

true for college students, and for college women in particular? In a study of self-esteem and alcohol use disorders, low self-esteem played an etiological role in women's alcohol problems (Walitzer & Sher, 1996). Since studies exist that demonstrate a positive correlation between binge-drinking and self-esteem in high school students, and a negative correlation between alcohol problems and self-esteem in adult women (Kashubeck & Christensen, 1995), it is helpful to interpret data specifically about college-age women binge-drinkers and self-esteem. This is useful because it fills a gap in the literature on women and alcohol; it supplies information valuable to counselors and other mental health care professionals working with college women.

Sex-Role Stereotypes. Clinical experience and research findings suggest that men and women drink for different reasons and with different consequences. Theory and research suggest that psychological masculinity, along with self-esteem, are related to drinking problems in women (Silvia, Sorell, & Busch-Rossnagel, 1988; Sorell, Silvia, & Busch-Rossnagel, 1993).

The students entering college today were born after the re-emergence of the feminist movement and in an era characterized by gender-role (Twenge, 1997). The Bem Sex-Role Inventory (BSRI) is over twenty years old, but recent assessment of the validity of the BSRI indicates that it may still be a valid measure of gender perceptions Holt & Ellis, 1998). Are college women attempting to adopt a traditionally masculine coping-behavior by drinking five or more drinks in rapid succession?

Although sex role stereotypes have not been examined in relationship to college women and binge-drinking, studies, for example, on the sex-role orientation of alcoholic

women have yielded contradictory results. Inclusion of this variable may yield important direction for both researchers and clinicians.

Statement of the Problem

College women are consuming more alcohol more frequently and the risks to them are even more pronounced than the risks to men (Wechsler, Dowdall, Davenport, et al., 1997). Although much has been written about college student drinking (Marlatt, Baer, & Lariner, 1995), little is known about college women who are binge-drinkers.

The addiction treatment field has come under attack for basing much of its intervention on research and theory, drawn from white male experiences with addiction (Bushway & Heiman, 1995; Wilke, 1994). Until recently, much of the research on women and alcohol tended to focus on the harmful effects of alcohol on women's reproductive organs and on Fetal Alcohol Syndrome.

Although female college students are drinking more alcohol, more often, and face more serious negative consequences than the risks to men (Wechsler, Dowdall, Davenport, et al., 1997), most of the previous research has focused mostly on the male experience of alcohol use, misuse, and abuse.

The relevance of this to the study under consideration is that women need not be compared to men when it comes to understanding drinking behavior. The examination of the underlying issues of binge-drinking behavior among college women can stand on its own, without a comparison to college men who are often the heaviest drinkers. Interventions that work for men may not work for women. Furthermore, the literature on binge-drinking is predominantly descriptive in nature, describing the frequency and

amount of alcohol use, as well as geographic differences. Little is known about the psychological characteristics of women who report binge-drinking.

Since alcohol use adversely affects both students and university life, approaches for dealing with this problem abound (Chaloupka & Wechsler, 1996; Meilman, 1992). Education and prevention about the effects of alcohol abuse have been the watchwords for decades. Empirical studies do not suggest that these efforts result in behavior changes in the students they target (Marlatt, Baer, & Lariner, 1995; Perkins & Wechsler, 1996). In addition, findings do not support the use of negative information regarding alcohol as an effective means of reducing alcohol intake in college women (Elias, Bell, Eade, Underwood, 1996). Perhaps these efforts do not result in the desired outcome, because students who report frequent binge-drinking with associated negative consequences, rarely designate themselves as problem drinkers. A practical application of the data derived from this investigation may point toward a new approach of dealing with the problem of binge-drinking among college women; it is based on the psychological aspects, which may perhaps be the underlying causes of their binge-drinking.

Purpose of the Study

The purpose of the present study was to examine the relationships between coming from an alcoholic family system, sex role attitudes, self-esteem, depression, and binge-drinking behaviors among college women. Specifically, the present study examines if depression, self-esteem, sex role attitudes, and meeting COA criteria predict membership in four distinct groups. The groups were: (a) non-drinker, no alcohol use in the past two weeks; (b) drinker, alcohol use in the past two weeks was less than 5 drinks at a time and

no more than one time a week; (c) binge-drinker, five or more drinks in a sitting; and (d) frequent binge-drinker, five or more drinks at a time, two or more times a week. It was hypothesized that female frequent binge-drinkers would show the highest levels of depression, more often meet COA criteria, and have lower self-esteem than their non-drinking counterparts. If these factors are associated with heavy binge-drinking and the development of alcoholism, and/or drug addiction during young adulthood, then mental health professionals may be able to provide more effective assessment, preventative, and treatment interventions for alcohol abuse among women (Bushway & Heiland, 1995; Cyr & Moulton, 1993; Gordis, 1996; Silvia, Sorell, & Busch-Rossnagle, 1988; Wilke, 1994). Furthermore, Wilke reports that a comprehensive investigation of women's substance abuse issues must include an understanding of how the interaction of psychological variables affect alcohol research, assessment, and treatment of alcoholism for specific populations.

Research Hypotheses

1. There will be a significant correlation between self-reported frequency rates and amount of binge-drinking (as reported on the Core Alcohol and Drug Survey) and scores on the Beck Depression Inventory, scores on the Bem Sex Role Inventory, scores on the Rosenberg Self-esteem Scales, and scores on the Children of Alcoholics Screening Test for college women.
2. On a discriminant function analysis, low self-esteem as indicated by scores on the Rosenberg Self-Esteem Scale will be the strongest predictor of membership in the frequent binge-drinking group for college women.

3. On a discriminant function analysis, high scores on the Beck Depression Inventory will be the strongest predictor of membership in the binge-drinking group for college women.

4. On a discriminant function analysis, psychological masculinity as measured by the Bem Sex-Role Inventory will be the strongest predictor of membership in frequent binge-drinking group in college women.

5. On a discriminant function analysis scores of six or more on the Children of Alcoholics Screening Test will be the strongest predictors of membership in the drinking group for college women.

Definition of Terms

1. Drinking: was any alcohol use in the past two weeks less than five drinks at a time.

2. Binge-drinking: for women was defined by the CORE Alcohol and Drug Survey as having five drinks in one drinking episode.

3. Frequent binge-drinking: was defined as binge-drinking three or more times in a two week period . A drink is defined as a 12-ounce can, bottle of beer, or wine cooler, a four ounce glass of wine, or a shot of liquor, either straight or in a mixed drink.

4. Adult Children of Alcoholics (COA): identification was defined by scores on the Children of Alcoholics Screening Test (CAST). The CAST is a reliable and valid instrument for identifying adult children of alcoholics (Charland & Cote, 1996; Sheridan, 1995). The CAST is a 30-item inventory designed to identify children of alcoholics and is appropriate for assessing individuals ages 9 to adult .

5. Depression: was defined by the score received on the Beck Depression Inventory. The Beck Depression Inventory is be used to measure depression, defined as a disturbance in mood that is a reaction to actual, threatened, or imagined loss.

6. Self-Esteem: was defined by the score on the Rosenberg Self-Esteem Scale, which suggests the extent that one sees oneself as worthy and valuable in general as an indication of the level of self-esteem. The Rosenberg Self-Esteem Scale is a 10-item instrument that has been used in numerous studies.

7. Sex-Role Stereotypes: were defined by scores on the Bem Sex Role Inventory. The Bem is a 60-item self-report assessment, which measures the extent to which individuals conform to sex stereotypes.

Significance of the Study

The present study adds to the body of research on female college students and binge-drinking. Interventions based on psychological variables associated with binge-drinking may attract more female students who might not otherwise seek help from counseling services, mentors, or others who are available for help on a college campus. If psychological variables such as depression, self-esteem, sex-role stereotypes, and family dysfunction, such as being a child of an alcoholic are related to college women's binge-drinking, perhaps interventions based on treating these underlying psychological problems can be implemented. The interventions can then be evaluated to determine if they are successful in reducing binge-drinking among college women and in reducing the resultant negative consequences. The ability to predict membership in the frequent binge-drinking group by obtaining a psychological profile of who is most likely to be a

frequent binge-drinker, assists clinicians in addressing the needs of this group of collegiate drinkers.

Limitations of the Study

Results from the present study are limited in generalizability to similar students at similar institutions and, therefore, may be limited to colleges and universities in the northeast, which are religiously affiliated. It has been suggested in other studies that the students at this university resemble, in demographic details, those at the far larger Rutgers, The State University of New Jersey. A second limitation is the reliance on self-reported data. If bias exists, it is toward under-reporting the amount and consequences of drinking (Wechsler, Davenport, et al., 1994). A third limitation, specific to the present study, may be the fact that the sample was composed of volunteers, not a random sample. Several assumptions are apparent in deeming this a limitation. A sample should be representative of the population. Collecting data on a college campus, in effect, makes the sample representative of the population because a certain amount of screening had occurred by virtue of admission to college. The investigator chose several venues to obtain participants, such as the commuter lounge, the dining room, classrooms, the Greek Room, and residence halls to ameliorate the inability to have a truly random sample.

Finally, the present study is intended to be predictive rather than suggesting any causation.

Summary

Research on women's alcohol problems, particularly binge-drinking has been rather limited. The purpose of the present study was to determine if the psychological variables of sex role, self-esteem, depression, and COA status, predict membership in one of four self-reported drinking categories: (a) non-drinkers, (b) drinkers, (c) binge-drinkers, and (d) frequent binge-drinkers in female college students.

One set of hypotheses are geared to understanding the relationship between the variables and binge-drinking; the other set examines the predictive nature of these variables and their ability to predict group membership. Consequently, correlational and Discriminant Function Analyses were used to determine these relationships.

CHAPTER II

Review of Related Literature

The focus of the present study was to examine the underlying psychological attributes that might predispose college women to participate in frequent binge-drinking. The related research raises certain questions, such as, are college women using binge-drinking in order to make a dysfunctional attempt of coping with depression, have low self-esteem, and exhibit sex-role conflict?

A coalescence of predisposing factors including physiological, psychological, social, and cultural influences, may contribute to a high potential for alcoholism . Can the same be said of problem drinking and binge-drinking, in particular, on college campuses? Researchers have begun to explore the issues underlying college student alcohol abuse, especially binge-drinking (Mintz et al., 1996; Perkins & Berkowitz, 1991; Perkins & Wechsler, 1996). College student binge-drinking recently has resulted in numerous student deaths (DeSimone, et al., 1994; Duberstein, Conwell, & Caine, 1993; Wagner, Cole, & Schwartzman, 1996). Historically, women have not been the focus of alcohol studies (Wilke, 1994). Early studies were of women hospitalized in the late stages of alcoholism. Interest in Fetal Alcohol Syndrome sparked a research interest in women and alcoholism in the early 1970s. Recently the emphasis has shifted to include studies of women of various ages, geographic locations, socioeconomic status, and most significantly various levels of alcohol with involvement from experimentation to addiction (Nolen-Hoeksema, 1990).

The following literature review includes studies that focus on the role of COA status, depression, self-esteem, and sex-role stereotypes in relation to the problem of binge-

drinking among college women.

The Core Alcohol and Drug Survey

The U.S. Department of Education subsidized the Fund for the Improvement of Post-Secondary Education (FIPSE). In response to the rising problem of alcohol abuse on college campuses, FIPSE gave funds to grantees to create an evaluation instrument and the Core Alcohol and Drug Survey (Core) was designed. The Core assisted post-secondary institutions in assessing the nature and extent of alcohol and drug use on their campuses (Presley et al., 1992). The Core facilitates investigation into the consequences of binge-drinking. Binge-drinking was a term used in the Harvard School of Public Health's first College Alcohol Study in 1994 (Wechsler, 1995). This term described the drinking pattern of significant numbers of American college students, basically drinking to get drunk. That original study examined the extent of binge-drinking by college students and the ensuing health and behavioral problems that binge-drinkers create personally and how it effects others on their campus. Presley et al reported that the results from the original Core Survey indicated that binge-drinking is widespread on college campuses, and programs aimed at reducing this problem should focus on frequent binge drinkers.

The problem of college student binge-drinking has drawn media attention across the nation. Despite this, the problem has not declined over the past four years. In fact, Wechsler's (1997) latest published research findings showed little change in the proportion of college students who binge. Among more than 14,500 students surveyed at 116 institutions, 43% reported that they had binged at least once in the preceding two

weeks, compared with 44% in the earlier study.

In 1997, the Harvard School of Public Health College Alcohol Study resurveyed colleges that participated in a 1993 study (Wechsler, 1997). The findings revealed little change in binge-drinking: a slight decrease in percentage of binge-drinkers and a slight increases in the percentages of students who abstained from alcohol use and frequent binge-drinking. Two out of five students were binge-drinkers (42.7%); 1 out of 5 (19.0%) reported abstaining from alcohol and 1 in 5 reported frequent binge-drinking (20.7%). As reported in 1993, 4 out of 5 residents of fraternities or sororities were binge-drinkers (81.1%). Asian students showed a greater increase and White students a greater decrease in binge-drinking from 1993 to 1997, compared with all other students. Among students who reported drinking alcohol, increases in frequency of drinking, drunkenness, drinking to get drunk, and alcohol-related problems, including drinking and driving, were also reported. Binge-drinkers in both the 1993 and 1997 Core national survey were at increased risk for alcohol-related problems, and students who did not binge-drink at colleges with high binge-drinking rates had increased risks of encountering secondhand effects of binge-drinking (Wechsler et al., 1997).

The Core Alcohol and Drug Survey was used to examine the extent of binge-drinking by college students and the ensuing health and behavioral problems that binge-drinkers created for themselves and others on their campus (Core Institute, 1999). The Core, a self-administered survey, was mailed to a national representative sample of United States four-year college students. One hundred forty four-year colleges participated in 1993. A total of 17,592 college students completed and returned the survey. This established a core of results, as measured by self-report on drinking

behavior, alcohol-related health problems, and other problems. At that time, almost half (44%) of college students responding to the survey were binge-drinkers, including almost one fifth (19%) of the students who reported to be frequent binge-drinkers. Frequent binge-drinkers are more likely to experience serious health and other consequences of their drinking behavior than are non-binge-drinking students. Almost half (47%) of the frequent binge-drinkers experienced five or more different drinking-related problems, including injuries and engaging in unplanned sex, since the beginning of the school year.

Most binge-drinkers do not consider themselves to be problem drinkers and have not sought treatment for an alcohol problem. According to Wechsler et al. (1995) binge-drinkers create problems for classmates who are not binge-drinkers. Students who are not binge-drinkers at schools with higher binge rates were noted to be more likely than students at schools with lower binge rates to experience problems, such as being pushed, hit, assaulted, or experience an unwanted sexual advance.

The Core is ideally suited for the present study, since it yields a rich variety of data. The items on the Core gather data regarding demographic information, information about quantity and frequency of alcohol use, behaviors and consequences of use, and perception of campus norms.

Psychological Variables Predictive of Alcohol Abuse

Adult Children of Alcoholics (COAS)

Persistent, negative consequences of parental alcohol abuse on offspring have been documented in the addiction literature (Perkins & Berkowitz, 1991). Marital

disturbances, instability, violence, abuse, and neglect may characterize alcoholic families. Whether by genetic transmission or learning, children from alcoholic families face increased risk of alcohol abuse, and other emotional and behavioral problems (Russell et al., 1985).

Some studies suggest that there is a relationship between parental alcoholism and substance abuse problems in offspring (Hinson, Becker, Handal, & Katz, 1993), while other studies find no significant relationship between these factors (Kashubeck & Christensen, 1990). A comprehensive review of the literature on Children of Alcoholics yielded the conclusion that this population is at a particularly high risk for alcoholism, as well as other emotional and behavioral problems, including social adjustment and substance abuse (Russell et al., 1985).

In a survey of 860 students, significantly greater problem drinking were indicated by students who reported having a parent or grandparent who had been diagnosed or treated for alcoholism (Perkins & Berkowitz, 1991). The students who reported having both an alcoholic parent and a grandparent reported the highest rates of problem drinking. Problem drinking was defined in the present study by asking respondents to indicate how often they got "smashed" as a result of drinking. Those who responded 'frequently' or 'always' to 'getting smashed' were classified as problem drinkers. Frequent heavy consumption of alcohol was assessed based on two questions from the Student Problem Drinking Measure. The two questions were: (a) How many days during the past two weeks were beer, wine, or liquor consumed? and (b) Estimate of the total number of drinks consumed during the past two weeks. Perkins & Berkowitz defined a drink as a beer, a glass of wine, a shot of liquor, or a mixed drink. The assessments are the Student

Problem Drinking Measure and Family Alcoholism Measures. Items are included from the Core Alcohol and Drug Survey and the Children of Alcoholic Screening Test. The important finding in this study is that multigenerational alcoholism is especially problematic. Parents who have had alcoholic parents, whether they themselves drink or not, are likely to have children whose drinking may be problematic. No differentiation is presented for male and female students in this study. Another important find in this study is that, like the Kashubeck and Christensen (1990) study, significant family dysfunction was associated with frequent negative consequences from parental binge-drinking. Thus, it is important to focus on COA status because these findings indicate COA college women may report the highest rates of binge-drinking.

In terms of being a child of an alcoholic and its relationship to college women's binge-drinking, Pullen (1994) reported a relationship between parental alcohol abuse and student alcohol abuse. Kashubeck and Christensen (1995), on the other hand, did not. Kashubeck and Christensen posit that any relationship between parental alcohol use and the overall high level of alcohol use in the college population masks offspring alcohol use which would exist in the general population. The important findings about this relationship are contradictory with existing research; therefore, further investigation of the relationship between COA status and binge-drinking is necessary, especially as it relates to binge-drinking in women college students.

Depression

Starting in the 1970s and into the present, gender differences in depression have been studied (Culbertson, 1997). Women are diagnosed with depression about twice as often

as men are diagnosed. Some researchers suggest that the ratio is even higher (Klerman & Weissman, 1989). Nolen-Hoeksema (1990) found that women reported a greater number of depressive symptoms than did men. Although college students view alcohol as a mood elevator, it only temporarily masks depression. In college life, drinking is seen as a social event, a way of making friends (Keeling, 1994). Yet alcohol contributes to relationship failures, and drinking opens up college women to a host of problems. Alcohol, used to relieve stress, depression, shame, and to loosen up, often increases these problems (Gleason, 1994). Others have investigated some of the hypotheses under examination in the proposed study. DeSimone et al. (1994) studied high school and college students under the age of 21. The Adolescent Alcohol Involvement Scale, the Rosenberg Self-Esteem Scale, and the Beck Depression Inventory were employed in this study. No investigation of familial alcohol use was conducted. Multiple regression analysis indicated that frequency of alcohol use was associated positively with both depression and self-esteem, but not significantly associated with age or gender. Alcohol use and misuse was found to be positively associated with depression. Some would argue that all use of alcohol below the age of 21 is misuse, but the important finding here is the association of alcohol misuse with depression in this age group. An interesting finding is the unexpected discoveries by these three investigators that in high school students self-esteem appeared to be positively correlated with alcohol misuse.

In high school students the frequency of drinking was found to be positively associated with depression (DeSimone et al., 1994). Self-esteem scores were higher among high school students who misused alcohol most frequently. This finding demonstrated that it appears that getting "wasted" is a badge of honor among the high

school crowd. How does socialization effect women's use of alcohol? Gleason (1994) stresses the importance of relationships in women's development. Failure in relationships damages the development of identity and self-esteem, and failures in mutuality and intimacy adds to subjective pain and dysfunction. According to this perspective, Gleason repots that women's self-esteem and identity grow out of engaging in and facilitating mutual relationships.

From infancy through childhood and into adolescence females are encouraged to be sensitive to their emotional interplay with others, and tend to be collaborative (Balkin, 1987). This tendency can sometimes cause women's search for mutuality to go wrong. Drinking alcohol may start as a way of being with others. Women tend to want to fit in, and are expert at adapting to cultural norms, and college campuses are fraught with cliques and subgroups. A woman may drink alcohol to enhance her sense of herself, drinking too much may result in feeling the opposite of what she desires to feel (Gleason, 1994).

Familial abuse of alcohol is associated with depression in college students (Kashubeck & Christensen, 1995; Pullen, 1994). When family alcohol use negatively impacted family relationship quality it was predictive of levels of depression and self-esteem in 201 college students. Witnessing spousal abuse was related to increased depression in adult children of alcoholics. Family relationship quality was poorer and was associated with lower self-esteem. The suggestion from this line of research is that the experience of paternal alcohol abuse is not uniform among children of alcoholics. Violence, abuse, and offensive behavior are associated with lower self-esteem and depression.

Self-Esteem

Self-esteem has long been considered an important factor in individual drinking behavior. Self-esteem and problem drinking have been studied in male and female college students (Corbin, McNair, & Carter, 1996; Pullen, 1994; Waittzer and Sher, 1996), alcoholic and nonalcoholic women (Sorell et al., 1993; Silvia et al.,) and high school students (DeSimone et al., 1994). Overall there appears to be evidence that self-esteem is a significant predictor of alcohol abuse, and that it is moderated by gender.

Do levels of self-esteem fall as drinking increases or does drinking increase as a reaction to low levels of self-esteem? Pullen (1994) conducted a study of 300 undergraduate college students at the University of Tennessee that consisted of 116 males (39%) and 184 females (61%). The majority of the students were between the ages of 18 and 23 years of age ($n = 169$, 63%). The largest single classification of students was 26 or older ($n = 70$, 23%), although the largest class of students were in their first year ($n = 125$, 42%). Pullen employed the Michigan Alcohol Screening Test (MAST), the Child of an Alcoholic Screening Test (CAST), the Beck Depression Inventory (BDI), the State-Trait Anxiety Inventory, the Assertiveness Self-Report Inventory, and the Coopersmith Self-Esteem Inventory.

The Pullen study (1994), like many others, found that a higher percentage of males (60%) compared to females (51%) abused alcohol. However, over the past several decades this gap has been narrowing. Grade point average was a good predictor of alcohol abuse in this study, as in others, that is, as drinking increases grade point averages tend to decrease. The findings of the Pullen study support the hypothesis that suggests

college students who abuse alcohol are more likely to come from an alcoholic family, than students who do not abuse alcohol. If alcoholism is a progressive disease with familial or genetic links, this relationship appears to be logical. Some students who abuse alcohol may be in the early stages of the progression of alcoholism.

The important findings in the Pullen study (1994) include the results of a stepwise multiple regression, which found that the best combination of variables predictive of alcohol abuse was familial abuse of alcohol, self-esteem, depression, state anxiety, GPA, and assertiveness. Unlike Kashubeck & Christensen (1990) who did not find a correlation between familial alcohol abuse and student drinking, Pullen demonstrated this relationship. Since the Pullen study was limited to students from the South, it is suggested that obtaining subjects from other areas of the country would improve generalizability. For instance, Tennessee students may not resemble students at universities in the Northeast portion of the United States, which consistently distinguishes itself by reporting the highest binge-drinking rates in the United States (Wechsler, Dowdall, Davenport, & Castillo, 1995). Although Pullen recommends using older students as participants, the decision was made to limit participants to female underage drinkers. Presumably participants were not in a late progressive stage of alcoholism; so the present study provides a psychological view of young women at a different stage both in terms of psychosocial development, and in terms of progression of any addictive behavior.

The role of alcohol problems and the development of low self-esteem has been studied by Waittzer and Sher (1996). In a longitudinal study over the four years of college, Waittzer and Sher found that low self-esteem was considered to play an

important etiological role in alcohol problems in women relative to men. Women who met the DSM-III-R criteria for alcohol use disorder in year two and three of the study demonstrated low self-esteem throughout the study period. The researchers found a prospective prediction of alcohol use disorder for women, but not for men.

Perhaps the variable labeled self-esteem represents different phenomena in men and women. This finding is important to the present study because the inclusion of other variables, such as depression, familial alcohol abuse, and sex role stereotypes may be helpful in clarifying the relationship between self-esteem and problem drinking in women. Since studies suggest that self-esteem is moderated by gender, it is important to examine the impact of sex role attitudes, in this light. Some women who are heavy drinkers exhibit good self-esteem.

Self-esteem has been included in various alcohol-related studies; focusing on this variable's relationship to college women in the present study and binge-drinking may generate useful information.

Sex-Role Stereotypes

Drinking too much alcohol is acting out and acting out is a male coping mechanism (Nolen-Hoeksema, 1990). If college women who drink too much are acting like men, or using a masculine style coping mechanism, will scores of the Bem Sex-Role Inventory of women college students, who are frequent binge-drinkers, indicate a greater masculine identification than their non-binge-drinking counterparts? A key factor in the present study was the decision to focus exclusively on women. Male and female substance abusers report different histories and courses for their addictive disorders; they

also display different needs and characteristics (Hodgins, El-Guebaly, & Addington, 1997).

Studies of sex-role orientation in alcoholic women have yielded contradictory results. While some have shown alcoholic women to be ultra-feminine, other studies have found them to be overly masculine, as well as confused or conflicted about their sex-role identity (Sorell et al., 1993). These researchers found that psychological masculinity was a better predictor of alcohol problems in women than self-esteem, but women with the lowest self-esteem were the consumers of the most alcohol. Other relationships between gender and alcohol consumption and self-esteem have been demonstrated (Corbin et al., 1996). They suggest that the relationship between self-esteem and alcohol abuse is moderated by gender, since female heavy drinkers reported the lowest self-esteem. For female heavy drinkers self-esteem scores increased as alcohol consumption went down. For males, there was no significant differences between groups classified by amount of drinking, but heavier drinkers tended to have slightly higher self-esteem scores.

If, as has been implied by research, alcoholism in adult females is associated with feelings of low self-worth, might not the same be true for college women heavy drinkers? Examining women in their college years yields a view of progression at a different stage. Silvia et al.(1988) and Sorell et al. (1993) examined the relationship of self-esteem and sex-role orientation in alcoholic women (mean age = 34.5 +/- 10.9 years). Using the Rosenberg Self-Esteem Scale and the Personal Attributes Questionnaire (PAQ), their results indicated that alcoholic and nonalcoholic women differ on measures of psychological masculinity and femininity. These differences were reflected in the

clustering of the low self-esteem alcoholic women in the undifferentiated sex-role category.

When the orientation was psychological coping style, rather than traditional sex-role orientation, alcoholic women were best distinguished by psychological masculinity, which was a better predictor of self-esteem than alcoholism. The high self-esteem nonalcoholic women were predominantly androgynous and masculine sex-typed. Psychological masculinity was the major factor distinguishing alcoholic from nonalcoholic women, and appeared to be a better predictor of self-esteem than alcoholism. The important feature here is that alcoholic women differ from non-alcoholic women on measures of self-esteem and psychological masculinity and femininity.

Will a study of college women who are binge-drinkers yield similar findings? This is related to the proposed study in that several of the same variables were examined using a different population. So the next step is to answer the question are college women binge-drinkers different from non-binge-drinking college women on measures of depression, self-esteem, and sex role stereotypes, and are COA women more likely to be binge-drinkers?

Nolen-Hoeksema (1990) has suggested that women use an "acting in" style of coping to a greater extent than men. Men use an "acting out" style of coping. Women sit and think about their problems, men distract themselves from their problems. Men are more likely to use alcohol, while women are more likely to get depressed. This would account for the greater frequency of depression in women. Perhaps women who drink are trying to deal with problems by using a male coping-style. There is some empirical

basis for this argument. Women in non-traditional, male dominated career occupations tend to score higher in psychological masculinity than women in female dominated occupations (Streitmatter, 1993; Waittzer & Sher, 1996). Such women have higher rates of drinking problems, than do women in traditional female employment.

Differences between alcoholic and nonalcoholic women have been demonstrated. In the 1988 study, by Silvia et al., of bio-psycho-social discriminators of alcoholic and nonalcoholic women, six variables were chosen to represent the biological, psychological, socio-cultural-approaches to alcoholism research. Results indicated that alcoholic women had more alcoholic relatives, had been treated for more health problems, were more depressed, had lower levels of self-esteem, were more deeply invested in meeting stereotypical feminine sex-role expectations, and perceived themselves as less successful in meeting the expectations of significant others.

Examining some of these variables with college women binge-drinkers could retrieve another portion of the puzzle of women and alcohol. An important question to answer is, do women who use this "acting out" coping-style report less depression similar to their male counterparts?

Summary

Binge-drinking among college women impacts fundamental issues such as women's health, safety, and success. Each national Core Survey reports the incidence of binge-drinking, but little has been investigated regarding the underlying issues that may be associated with college women's binge-drinking. Being proactive and investigating these issues before many more college women die from the effects of binge-drinking, is an appropriate area of investigation and concern that forwards the goals and ideals of the

scientist-practitioner model in the specialization of counseling psychology. Most of the information on alcohol abuse and alcoholism comes from adult male and female populations in treatment for addiction. More research needs to be conducted to investigate the interplay between gender and problem drinking. College women are drinking in greater numbers and greater amounts; is this a masculine coping style? Would addressing the needs of college women, in terms of sex role attitudes/identification have a positive impact on the problem of binge-drinking in this population?

Women have not been the focus of many alcohol studies. Many studies utilizing both men and women do not differentiate the contribution of gender. The Pullen (1994) study although excellent was conducted in a different geographic area, the South, where drinking rates are lower so conducting a similar study in the North-East could yield interesting information.

CHAPTER III

Methodology

This chapter describes the participants of the study, instruments utilized, procedures, and data analysis strategies that were employed in testing of the research hypotheses of the present study.

Study participants

Female college students ($n = 123$) at a private Catholic university in the northeast, who were 18 to 20 years old and volunteered to participate in the present study. The rationale for including only those women under 21 was to focus on the drinking behavior of underage, illegal drinking, since the legal drinking age in New Jersey is 21.

Demographic information obtained from The Core Alcohol and Drug Survey.

Only one participant exceeded the age limit of the present study and her data was not included. Over a third (35.8%) were 18 years old, 23.6% were 19 years old, and 38.2% were 20 years old. First year students represented 51.2% of the study participants, 13.8% were sophomores, 24.4% were juniors and 9.8% were seniors. Full-time students were comprised 95.9% of the sample.

Several ethnic groups were represented in the sample: 63.4% white (non-Hispanic), 13% Black (non-Hispanic), 8.1% Hispanic, 8.1% Asian/Pacific Islander, 4.9% designated themselves as other, one participant was American Indian/Alaskan Native.

New Jersey was the reported home residence of 67.5% of the study participants. Participants from outside of New Jersey, but from the USA amounted to 27.6%, and 2.4% were from a country other than the USA. In terms of current residence, 63.4% lived on campus and 35% lived off campus with 1.6% not responding to that inquiry.

Overall, the study participants reported being in good academic standing. The cumulative Grade Point Average (GPA) of the study participants ranged from 4.0 , 2.4%) to 0 1.6%), and the modal GPA was 3, which 21.1% of the study participants reported as their GPA. The letter grades were transformed to 13 numbers (1 = A to 13 = F), the range was 12, the mean was 5.17, and the standard deviation was 2.18.

Part-time workers represented 61% and 35.8% of the study participants reported not working. Only 1.6% of the study participants reported working full-time. All of the participants were single.

Although 87% of the women in the present study were aware of the campus policy on alcohol and drugs, only 38.2% believed the policies were enforced. Slightly more than half of the respondents believed that the university is concerned about the prevention of alcohol use.

Instruments

The instruments utilized in the present study all have high reliability and validity. They are established measures and are appropriate to this investigation. The instruments chosen for the study were: (a) the Core Alcohol and Drug Survey (Presley et al., (b) the Children of Alcoholics Screening Test (Sheridan, 1995), (c) the Beck Depression Inventory (BDI-II; Beck, Steer, & Garbin, 1988), (d) the Rosenberg Self-Esteem

Inventory (Rosenberg, 1965; Rosenberg, Schooler, & Schoenbach, 1989), and (e) the Bem Sex-Role Inventory (Bem 1981; Bem & Lenney, 1976; Bem, Myrna, & Watson, 1976).

The Core Alcohol and Drug Survey. The Core is an instrument for evaluating the nature and extent of alcohol and drug use among college students. The Core survey was employed to determine if the study participants: (a) have used alcohol in the past two weeks, (b) have participated in binge-drinking episodes in the past two weeks, and (c) how frequently the study participants have had binge-drinking episodes in the past two weeks.

Formerly the Core was a single page assessment. It was designed to assess use and perception of use of alcohol, and other drugs among college students. The Core is compatible with many instruments and is used extensively in alcohol research. It provides, as its name indicates, a Core of information that can be used to compare information from different regions of the United States, as well as from around the world.

The Core yields demographic information, information quantifying alcohol and drug use, and perception of alcohol and drug use of other students. The Core also measures alcohol and other drug-related attitudes and behaviors.

The first two pages of the Core Alcohol and Drug Survey Long Form cover the following topical areas: (a) demographics (including year in school, age, ethnic origin, marital status, and gender); (b) working and living arrangements; (c) academics (including self-reported grade average, focus of coursework, and full- or part-time status); (d) perceptions of campus substance abuse policies and their enforcement; (e)

average number of drinks consumed per week; (f) frequency of binge-drinking; (g) patterns of use of alcohol, tobacco, marijuana, cocaine, amphetamines, sedatives, hallucinogens, opiates, inhalants, designer drugs, steroids, and other drugs; (h) age of first use; (i) perceptions of others' use; (j) location of use; (k) consequences of use; (l) family history of substance abuse problems; and (m) desire for an alcohol and drug free social environment. The third and fourth pages of the Core Alcohol and Drug Survey Long Form contain questions covering all the areas listed above plus questions covering the following areas: (a) participation in extracurricular activities, (b) beliefs about the effects of alcohol, (c) perceptions about how close friends would feel about use of different drugs, (d) questions on racial harassment and violence, (e) secondhand effects of drinking, and (f) perceptions of harm associated with using alcohol and other drugs, among other questions (Core Institute, 1999).

Test-retest correlation coefficients of stability for age of first use range from $r = .61$ to $.99$ and test-retest correlation for use within the last year are also high, ranging from $r = .99$ to 1.00 (Presley et al., 1992). One limitation in the manual is the need for an explanation on the test retest time frame.

Item reliability utilized Cronbach alpha. Total test correlation on age of first use, use within the last year, perception of frequency of alcohol use by others, and consequences of use were in a satisfactory range ($r = .59$ to $.90$). Cronbach or coefficient alpha is an appropriate choice of reliability in order to sample the content and homogeneity of content, the latter of which is preferred over heterogeneity, such that "the more homogenous the domain, the higher the inter item consistency" (p. 122). The greater the heterogeneity, the greater the error variance, which therefore lowers the reliability of the

test. These two types of reliability complement each other, as the error variance is different for each (time sampling for test-retest, content sampling and content heterogeneity). Test-retest correlations for the Core were between .59 and 1.00, which Anastasi states can be considered as relatively reliable and stable.

Since validity is such a fundamental concern, establishing content related validity was central to the construction of the Core. The inter-rater agreement for item inclusion was .90. Item inter-correlations for the questions on the Core Instrument were well within the desirable range.

The Alcohol and Drug Survey was designed to be the centerpiece or "core" of potentially lengthier studies that institutions might conduct on their campuses. It was specifically designed to be inexpensive, easily administered, of high quality, statistically reliable and valid, and comparable to other surveys in the field. The content of the Core Survey was developed by experts on the basis of both theoretical assumptions, regarding alcohol and drug use in the higher education setting, and on previous research reported in the literature. Each item was carefully thought out, and in many cases, the Core Analysis Grantee Group had lengthy debates before arriving at an exact wording or formatting of a question. During the summer of 1989, the Core Analysis Grantee Group met in Washington, DC to format the questions based on the above criteria. By late February 1990, the survey was ready for distribution and used by FIPSE grantees (Core Institute, 1999).

Stolberg (1990) one of the experts involved in the creation of the Core alcohol and Drug Survey stated that a scale is valid to the extent it provides desired information concerning the respondent or a particular group of respondents. A complex process was

involved in validating the Core. Interscale correlations indicated discriminant validity of several of the Core scales at the .05 level of significance. The majority of the scales correlated significantly with each other. Concurrent validity was demonstrated between the Core and the Student Drinking Information Scale and the Student Alcohol Questionnaire. Discriminant validity was indicated by the significant correlation (.01) between the scales of the Core. Also, the Core is highly correlated with the Short Michigan Alcoholism Screening Test ($p = .01$; Stolberg, 1990). Stolberg reports that there is also strong evidence of construct validity at the individual level of analysis.

The present study utilized the scores on items 14 and 15 to determine alcohol abuse. In the present study reliability analysis resulted in Alpha = .84, which was well within acceptable values.

Children of Alcoholics Screening Test (CAST). The CAST is a 30-item screening instrument used to identify children who are living or who have lived with alcoholic parents. It was intended to measure feelings, attitudes, perceptions, and experiences of children concerning their parents' use of alcohol.

The CAST was employed to determine if study participants endorsed statements indicating COA status. Total CAST scores discriminated self-identified children of problem drinkers from others whose parents did not have drinking problems. Scores can be significantly correlated with the severity of parental psychological problems and social complications due to alcohol misuse. The CAST has been utilized with deaf undergraduates, grammar school students, high school students, college students, and psychiatric patients.

The CAST is simple to score, since the 30 questions are answered yes or no. The total number of yes answers are added and scores over six indicate COA status. Generally, a cutoff score of 6 or more is considered reliable. The CAST is uni-dimensional, possesses excellent reliability, and has a low standard error of measurement. Assessment of this instrument has shown discriminant, factorial, and construct validity (Charland & Cote, 1996; Cutler & Radford, 1999). It has good internal consistency with a Chronbach's Alpha of .95 (Palmer, 1997). The CAST is a reliable and valid instrument, that has been employed in both research and clinical practice (Sheridan, 1995). The CAST has exhibited substantial item-total scale correlation and a high level of internal consistency reliability. The CAST also correlates significantly with measures of alcohol and drug use. Cutoff scores produce a low false positive and false negative rate (Stanley & ElGuebaly, 1991). Evidence suggests that the CAST does measure the disruption that accompanies alcoholism (Lease & Yanico, 1995). Reliability coefficient for the CAST for the present study was $\text{Alpha} = .96$.

The stability of the Children of Alcoholics Screening Test has been verified on 376 college students who were each evaluated twice by means of the CAST (Charland, 1998). The psychometric properties of the CAST were investigated by Sheridan (1995) who found support for the use of the CAST as a reliable and valid instrument. In terms of validity issues, according to Berkowitz and Perkins (1988), a single-item screening question has been used often in the Children of Alcoholics literature: "Have you ever wished one or both of your parents drank less?" It has been combined with two back-up questions: "Do either or both of your parents have an alcohol problem?" and "Is there any history of alcohol abuse in your immediate or distant family?" (Hinson, et al., 1993).

Item 22 on the Core was transformed into the variable "family", having a family member who was an alcoholic. CAST questions 1 and 12 and Core question 22 were transformed into the variable "Child of an Alcoholic"(COA). Reporting that they have a family member who was an alcoholic on Core 22, and answering "yes" to CAST question 1, "Have you ever thought that one of your parents had a drinking problem?" and Question 12, "Did you ever wish that a parent would stop drinking?" were significantly correlated ($r = .82$, $p = 0.01$, indicating both the CAST and the Core do a credible job of identifying those who consider themselves to be children of alcoholics.

The Beck Depression Inventory (BDI). The BDI was used to determine the level of depression of the participants in the present study. The BDI has been used extensively with normal adolescent and adult populations. It is the most widely used research instrument for assessing depression.

The revised BDI is a 21-item instrument that has been designed to assess the severity of depression in both adults and adolescents (Beck & Speer, 1989). It identifies symptoms related to cognitive, behavioral, affective, and somatic components of depression. Although originally designed for use by trained interviewers, it is now most typically used as a self-report measure (Beck, Steer, & Garbin, 1988).

Each item comprises four statements rated from 0 to 3, in terms of intensity: high scores represent more intense depression. BDI scores can range from 0 to 63. Each of the 21 items are rated on a 4-point scale ranging from 0 (symptom not present) to 3 (severe). The scores reported by study participants in the present study ($N = 123$) ranged from 0 to 35. Scores ranged from symptoms not present (0 – 9), to moderate to severe symptoms of

depression (18 – 29), with two study participants reporting extremely severe depression (30 – 63; Beck & Steer, 1987).

The Beck Depression Inventory manual presents normative data for six outpatient samples, consisting of the following: (a) mixed diagnoses, (b) single major depressive disorder, (c) recurrent episode depressive disorder, (d) alcoholics, and (e) recurrent major depression.

Each of the items has four statements, one which may best describe how the participant is feeling at the time of the assessment. The BDI may be administered in 10 to 15 minutes. Scoring guidelines for the revised editions are minimal depression with scores between 0 and 9; mild depression are scores between 10 and 16; moderate depression are scores between 17 and 29; and severe depression are scores between 30 and 63 (Beck & Steer, 1987).

Estimates of internal consistency for non-clinical adolescents have ranged from .80 to .90 ($M = .86$). Test-retest reliability has been studied and indicated a consistent relationship between BDI scores and the participant's clinical state ($r =$ above .90). Using Spearman Brown Prophecy Formula, internal consistency studies demonstrated a correlation coefficient of .86 for the test items. Face validity is sufficient for the BDI. The BDI evaluates a wide variety of symptoms and attitudes associated with depression, therefore, content validity is assured. Concurrent validity has been demonstrated in several studies, a .77 correlation was demonstrated by Oliver, and McClure (1978). Convergent validity has been demonstrated with the Child Assessment Schedule for item scores of depression symptoms ($r = .73$) and with General Self-Worth subscale scores from the Perceived Competence Scale for Children ($r = .64$). Based on these six samples

Cronbach's coefficient alphas ranged from .79 to .90. A previous study cited a mean score of .86 for the BDI in a meta-analysis with nine psychiatric samples, and .81 for 15 non-psychiatric samples (Beck & Speer, 1989). Test-retest reliability has been reported to be .64 with undergraduate students. Other researchers have studied convergent validity with other instruments. Reliability analysis for the BDI in the present study was $\text{Alpha} = .84$.

Rosenberg Self-Esteem Inventory (RSEI). The RSEI is a widely used instrument for measuring self-esteem. The RSEI is a ten-item, uni-dimensional instrument intended to measure global self-esteem or the extent to which an individual in general sees him/herself as worthy and valuable (Rosenberg, 1965; Rosenberg, Schooler, & Schoenbach, 1989). The RSEI has attained extensive psychometric support (Yelsma & Yelsma, 1998). Respondents rated the ten statements on a four-point Likert scale.

The sum of the ratings, which could range from 10 to 40, indicates level of self-esteem, with higher scores indicating lower self-esteem. A score of 10 to 20 was used as an indication of good self-esteem and a score of 21 to 40 was used to indicate low self-esteem.

Items 2, 5, 6, 8, and 9 are reverse scored. Reliability analysis for the RSEI in the present study was $\text{Alpha} .76$.

Bem Sex Role Inventory (BSRI). The BSRI is a 60-item self-report instrument that assesses the extent to which an individual perceives him/herself to conform to the stereotypes of masculinity and femininity. Twenty items are considered to be desirable

terms describing masculinity, and twenty are considered to be feminine, twenty are considered to be neutral. These terms are considered to be normative and socially desirable in American society of the 1970s (Broverman, Vogel, Bee, et al., 1972; Rosenkrantz, Vogel, Bee, Broverman, & Broverman, 1968). Responses are given on a 7-point Likert scale ranging from "always true" to "never true", with higher scores representing higher levels of stereotyped attributes.

For the purpose of the present study, BSRI masculine (M) and feminine (F) scores were each dichotomized, thus creating a fourfold contingency table with four elements: (a) masculine (high M, low F); (b) feminine (high F, low M); (c) androgynous (high M, high F); and (d) undifferentiated (low M, low F). This scoring implies a model in which the dimensions are uncorrelated.

The BSRI enables researchers to obtain a measure of psychological androgyny, or high levels of both masculinity and femininity. This type of individual according to Bem (1974) is more adaptive in that they are not bound by behaviors associated with traditional masculine or feminine sex roles, but they may feel comfortable engaging in behaviors appropriate for either gender. This gives these individuals increased flexibility and adaptability because their range of behaviors is not restricted by a traditional sex role (Bem & Lenney, 1976). Research has supported the idea that androgyny correlates with a number of other positive attributes, such as higher levels of identity formation in college students (Bem, 1975). In addition, androgynous individuals have demonstrated more reasons for living than gender-typed individuals. These findings suggest that androgynous individuals tend to be psychologically healthier and function more adaptively in modern living. In contrast, Bem suggests that individuals who are

undifferentiated in terms of gender role (low on both masculinity and femininity) tend to be less adaptable.

The BSRI is a psychometrically sound instrument with strong test-retest reliability. Bem (1974) reported coefficient alphas for the masculinity scale of .80 and the femininity scale of .81, with little correlation between the two scales. Bem reported high internal consistency and test-retest reliability on the BSRI. The BSRI test-retest reliability within a sample of 28 males and 28 females was demonstrated to be highly reliable over a four week period (Masculinity $r = .90$; Femininity $r = .90$; Androgyny $r = .93$).

The psychometric properties of the BSRI have, in addition, been examined through many investigations (Bem, 1975; Wilson & Cook, 1984). Coefficient alphas computed for masculinity and femininity revealed high reliability. In the present study, the reliability analysis indicated adequate reliability with Masculinity Alpha = .86 and Femininity Alpha = .82.

Procedures

Data collection began after permission was obtained from the Institutional Review Board for working with human participants/subjects. The primary investigator approached the Dean of Students, the Dean of Freshman Studies, and the Director of Student Support Services about contacting students to participate in this investigation.

The primary investigator solicited participants through Freshman Studies, Equal Opportunity Program, Student Support Services, the Department of Housing and Residence Life, Greek Life, and Student Affairs. By gathering volunteers from these departments, it was hoped to achieve a variety of women to participate in the present

study.

Two hundred packets were prepared in anticipation of some study participants either not responding or not completing all of the assessments, with the hope of obtaining at least 100 usable data sets. Each packet consisted of a manila envelope containing the following:

1. A letter of introduction explaining the nature of the investigation and of informed consent (Appendix A).
2. The CORE Alcohol and Drug Survey (CORE).
3. The Children of Alcoholics Screening Test (CAST).
4. The Beck Depression Inventory (BDI).
5. The Rosenberg Self-Esteem Scale (RSES).
6. The Bem Sex Role Inventory (BSRI) (Appendix)

Residence Hall Directors distributed packets to willing participants and the Resident Hall Assistants collected the finished packets and returned them to the primary investigator. Some women who were willing to volunteer obtained packets from the primary investigator then completed and returned the instruments to a receptacle in the Office of Freshman Studies in Mooney Hall.

Administrators were instructed to give the directions for completion of the surveys. Since there were five hypotheses involving five empirical comparisons, it was expected that the number of volunteers would insure that the sample size exceeds the accepted recommendation for power to be .80 or better, for the hypotheses and exploratory analyses. The power estimate for the present study was .81.

All study participants were told they were being asked to engage in a research study

involving college women and drinking. Study participants were told that their cooperation would help the investigator to understand the relationship between drinking and psychological variables; also that it was an anonymous survey. Study participants were asked to complete the surveys and return them in a manila envelope directly to the receptacle bin provided outside of the investigator's office in Freshman Studies in Mooney Hall. The investigator collected the materials from the receptacle bin and stored them in the safe in University Counseling Services in Mooney Hall. Data collection was completed in one semester and this resulted in 123 completed data sets. No association was made between their identity and their responses. No incentives for participation were given.

Two undergraduate students assisted the primary investigator in data collection. This involved soliciting participants and collecting completed packets from residence halls and the commuter lounge. Survey packets were distributed with appropriate approval in residence halls, the commuter lounge, at sorority meetings, and in the Greek Room.

Data Analysis

Statistical Software Package for the Social Sciences (SPSS) was employed for data analysis. The extensive information obtained from the Core Alcohol and Drug Survey supplied the demographic data and the basis for obtaining the variables of both quantity and frequency of alcohol use. Descriptive statistics, namely frequencies, were used to indicate participants' age, ethnicity, place of permanent residence, academic standing, GPA, and work-status.

Internal reliability was examined for all instruments, which were utilized in the present study using Chronbach alpha correlations.

The first hypothesis examined the correlations between all of the research variables. The second set of hypotheses (numbers 2, 3, 4, and 5) focused on the prediction of group membership, the groups being: (a) nondrinkers, (b) drinkers, (c) binge-drinkers, and (d) frequent binge-drinkers. Therefore, Discriminant Function Analysis (DFA) was employed since DFA is used to discern variables that predict group membership. DFA assists in understanding the nature of the group differences, and assists in determining an association between group membership, and interpreting the differences on group variables. It does not establish cause and effect.

A direct DFA was performed using psychological variables as predictors of membership in one of four drinking groups: non-drinker, drinker, binge-drinker, frequent binge-drinker. This was determined by the results of the administration of the Core Alcohol and Drug Survey. Predictors were scores on the CAST, BSRI, the RSEI, and the BDI which were entered in that order based on the strength of their correlation with drinking groups. Evaluation of assumptions of linearity, normality, multicollinearity or singularity, and homogeneity of variance revealed no threat to the multivariate analysis.

The statistical analyses used in the present study were intended to predict group membership. All hypotheses were a priori, directional hypotheses; therefore, the .05 level of significance was used to reject the a priori directional null hypotheses on a possible sample of 100 respondents. Since there are six variables in the present study, the number of participants actually exceeded the number required to obtain acceptable power (Tabachnick & Fidell, 1989).

Exploratory Analysis

The data that was collected allowed the investigator to examine the relationships between age of first alcohol use, age of first tobacco use, being injured while under the influence of alcohol, suicidal ideation, having unwanted sexual contact, COA status, depression, self-esteem, and psychological masculinity. In order to address the research questions, the investigator reported and evaluated the intercorrelational matrix. The zero order correlation was interpreted for significance using the .05 level of significance. The correlation with GPA was the Pearson Product-Moment Correlation (Tabachnick & Fidell, 1996).

CHAPTER IV

Results

This chapter includes the results of the data analyses for the current study. Included are the reliability analyses, descriptive statistics for each measure, and the results for the discriminant function analyses. All analyses were performed using SPSS Version 9.0 .

Reliability Analysis

Chronbach's alpha was used to report internal reliability for all of the instruments used in the present study. All internal reliability estimates were within acceptable ranges: $r = .84$ (BDI); $r = .78$ (BSRI); $r = .96$ (CAST); and $r = .76$ (RSEI).

Descriptive Statistics

The means and standard deviations of the present research are presented in Table 1. These are consistent with both the information concerning means and standard deviations in the respective manuals and in the literature.

Tests of Hypotheses

The first hypothesis was analyzed using correlational analysis (Table 2). Hypotheses 2, 3, 4, and 5 were examined utilizing discriminant function analysis to predict group membership. Of the original 123 participants, two were dropped from the analysis

Table 1

Means, Standard Deviations, and Ranges for Variables: Core 14, Core 15, CAST, BDI, and RSEI

Variable	M	SD	Range
Core 14	1.86	1.57	0-12
Core 15	4.09	8.00	0-60
CAST	3.41	6.75	0-26
BDI	7.67	6.49	0-35
RSEI	17.45	5.64	10-37

Note. N = 123. Core 14 = number of binge-drinking episodes in 2 weeks. Core 15 = number of drinks per week. CAST = Children of Alcoholics Screening Test (scores over 6 indicate COA status), BDI = Beck Depression Inventory (higher scores indicate greater levels of depression). RSEI = Rosenberg Self-Esteem Inventory (higher scores indicate lower self-esteem).

Table 2

Correlation Between All Variables

	Core 14	Core 15	CAST	BDI	RSEI	BSRI-M	BSRI-F	BSRI-A	BSRI-U
Core 14	1.00	.510**							
Core 15	.510**	1.00							
CAST	.137	.095	1.00						
BDI	.006	-.021	.148	1.00					
RSEI	-.053	-.002	-.229*	-.146	1.00				
BSRI-M	.059	.030	.200*	-.040	-.102	1.00			
BSRI-F	-.003	-.091	.087	.012	.002	.150*	1.00		
BSRI-A	-.095	-.128	.076	-.066	-.125	.343*	.663*	1.00	
BSRI-U	-.076	.142	-.093	-.121	.057	-.336*	-.283*	-.229*	1.00

Note N = 123. Core 14 number of binge drinking episodes, Core 15 average number of drinks per week, Beck Depression Inventory (BDI), Rosenberg Self-Esteem Inventory (RSEI), Bem Sex-Role Inventory (BSRI), Masculine(M), Feminine(F), Androgynous (A) Undifferentiated (U).

because of missing data. The missing data appeared to be randomly scattered throughout groups and predictors.

The standardized canonical coefficients for the discriminant functions demonstrated the relationship between the variables and the underlying canonical variant (Tabachnick & Fidell, 1996). The canonical loadings are presented for each hypothesis, as are the Wilk's Lambda tests for each of the derived discriminant functions. To test hypotheses 2 through 5, a discriminant function was derived for each hypothesis accounting for the between-group variance. One discriminant function was statistically reliable, namely hypothesis five.

Hypothesis 1

The first hypothesis examined the correlation between the variables of frequency and amount of drinking with total scores from the CAST, the BDI, the RSEI, and the BSRI for the 123 study participants. Pearson correlation coefficients were calculated for the relationships between the variables. These correlations are presented in Table 2.

Overall, no significant relationships were found between the dependent variables and frequency and the amount of alcohol use. Further analysis of drinking-groups (non-drinkers, drinkers, binge-drinkers, and frequent binge-drinkers) can be seen in Table 3. CAST scores when transformed into COA status (CAST score of 6 or more), which indicated that Children of Alcoholics were likely to be drinkers ($r = .22, p = .01$), to be more depressed ($r = .15, p = .05$), and to be psychologically masculine ($r = .22, p = .01$).

Table 3

Drinking Groups According to the Core Alcohol and Drug Survey Responses

Non Drinkers	Drinkers	Binge drinkers	Frequent Binge Drinkers
75	17	15	16

Note. $N = 123$. Non Drinkers = no alcohol use reported for the last two weeks. Drinkers = alcohol use reported in the last two weeks, less than five drinks in a sitting. Binge-drinkers = alcohol use reported as five drinks in a sitting one or two times in the last two weeks. Frequent binge-drinkers = alcohol use reported, five or more drinks more than two times in the past two weeks.

No significant correlations between total CAST scores with total scores for frequency and amount of drinking were found ($r = .13, p = .05$; $r = .09, p = .05$). The mean score on the CAST was 3.41 ($SD = 6.75$). Overall total CAST scores and drinking do not relate to each other, but CAST scores over 6, being a child of an alcohol did relate to being a drinker.

No significant correlations between scores on the BDI and frequency and amount of alcohol use were found ($r = .00, p = .05$; $r = -.02, p = .05$). Sixty-eight percent of the respondents indicated they were not experiencing symptoms of depression. The mean response was 7.67 ($SD = 6.49$), the range was 0 to 35. Being depressed did not equate with drinking. No significant correlations between scores on the RSEI and frequency and amount of alcohol use were found ($r = -.05, p = .05$; $r = .00, p = .05$). Having low self-esteem did not equate with drinking. No significant correlations between BSRI scores

and drinking groups were found (Table 2).

Discriminant Function Analysis

Discriminant Function Analysis (DFA) was used to predict membership in the drinking groups. The predictors were COA status, depression, low self-esteem, and masculine sex-role stereotypes. The assumptions of discriminant function analysis, linearity, normality, multicollinearity or singularity, and homogeneity of variance were examined using histograms and scatter plots for each measure in the study. The plots for each variable appeared to be normal. One outlier was found on one measure, but was not due to data entry error. The variances of the variables appeared to be equal. Pearson correlations (Table 2) did not reveal high levels of multicollinearity, except for self-esteem and depression, which was expected.

Each of the following hypotheses, 2 through 5, report Eigenvalues, Wilk's Lambda, standardized canonical discriminant function coefficients, and a structure matrix. In the case of hypothesis five where significance was found, the group centroids are reported. Group centroids are an estimation of group means. If the predictors do discriminate among groups it is important to report how the groups differ on those variables (Tabachnick & Fidell, 1996).

Eigenvalues show the relative proportion of variance contributed by the discriminant functions. Wilk's Lambda evaluates multivariate significance. The standardized canonical discriminant coefficient not only assesses the relationship between variables, but serves to assess the strength of the association. The structure matrix describes vectors in space. Since in DFA the rotation of these vectors is oblique, a structure matrix is

produced. Oblique refers to the observation that the predictor variables are somewhat correlated (Tabachnick & Fidell, 1996). An important aspect in the reporting of the results of DFA is that although functions are derived, and differences are noted in group centroids, this does not mean the derived function is reliable, that is to say statistically significant.

Hypothesis 2

The second hypothesis was that low self-esteem would predict membership in the frequent binge-drinking group. The participants who reported drinking 5 or more drinks in a sitting, more than 2 times in the past 2 week constituted this group. There were 15 participants in this group. Eight participants binged 3 to 5 times, 5 participants reported binge-drinking episodes 6 to nine times, and 2 participants reported binge-drinking episodes 10 or more times. All the other variables were entered simultaneously.

Two discriminant functions were derived [$X^2(12) = 8.4, p = .75$; $X^2(5) = 3.72, p = .59$]. The first and second function explained 57% and 43% of the variance, respectively. The standardized canonical discriminant functions are reported in Table 4. The structure matrix is reported in Table 5.

Group means are reported as functions at group centroids as follows: On the first discriminant function, binge-drinking 3 to 5 times in the past 2 weeks ($\underline{M} = .48$, 6 to 9 times; $\underline{M} = .56$, 10 or more times). On the second discriminant function, ($\underline{M} = -.39$, 3-5 times; $\underline{M} = .22$, 6 to 9 times; $\underline{M} = 1.5$, 10 or more times), none of the functions were statistically reliable. Self-esteem does not appear to predict drinking group membership.

All of the variables were entered simultaneously. One function was derived

accounting for 100% of the variance. Wilk's Lambda equaled .89, $\chi^2(7) = 2.51$, $p = .92$. The standardized canonical discriminant function coefficients are presented in Table 6.

Hypothesis 3

The third hypothesis was that depression would predict membership in the binge-drinking group for college women. The participants who reported drinking five or more drinks, one to two times in the past two weeks constituted this group. A total of 29 met the criteria for this group. Seventeen reported one binge-drinking episode in the past two weeks, 12 reported two binge-drinking episodes in the past two weeks.

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions are reported in Table 7. The variables are ordered by absolute size of correlation with the derived function. The functions at group centroids were as follows for the one derived function: one binge-drinking episode = .27, two binge-drinking episodes = -.38. The function was not statistically reliable. Depression scores did not predict drinking group membership.

Hypothesis 4

The fourth hypothesis was that psychological masculinity would predict membership in the frequent binge-drinking group. The study participants who reported drinking 5 or more drinks in a sitting more than 2 times a week constituted this group. The frequent binge-drinking group included study participants.

Two functions were derived $\chi^2(12) = 8.40$, $p = .75$, and $\chi^2(5) = 3.73$, $p = .59$. The first function had an Eigenvalue of .63, the second .48. The first function accounted for

57% of the variance, the second for 43%. Standardized discriminant functions are reported in Table 8. The pooled within-groups correlations between discriminating variables and standardized discriminant functions are reported in Table 9. Functions at group centroids are reported in Table 10.

Table 4

Standardized Canonical Discriminant Functions for Self-Esteem

	Function 1	Function 2
CAST	.073	.886
BDI	1.55	-.248
RSEI	-1.67	.131
BSRI M	.712	-.677
BSRI F	1.31	.570
BSRI A	.759	.492

Note. $N = 123$. CAST = Children of Alcoholics Screening Test (scores over 6 indicate COA status), BDI = Beck Depression Inventory (higher scores indicate greater levels of depression). RSEI = Rosenberg Self-Esteem Inventory (higher scores indicate lower self-esteem). BSRI = Bem Sex-Role Inventory M = masculine, F = feminine, A = androgynous. Undifferentiated failed the tolerance test and was not included in the analysis.

Table 5

Structure Matrix for Derived Functions for Self-Esteem

	Function 1	Function 2
BSRI F	.495*	.302
BSRI M	.256	-.557*
RSEI	-.120	.495*
BSRI A	.015	.464*
BDI	-.022	.295*
CAST	-.120	.260*

Note. N = 123. CAST = Children of Alcoholics Screening Test (scores over 6 indicate COA status), BDI = Beck Depression Inventory (higher scores indicate greater levels of depression). RSEI = Rosenberg Self-Esteem Inventory (higher scores indicate lower self-esteem). BSRI = Bem Sex-Role Inventory M= masculine, F= feminine, A= androgynous. Pooled within-groups correlation between discriminating variables and standardized discriminant functions. * Largest absolute correlation between each variable and any discriminant function.

Hypothesis 5

Hypothesis 5 was that being a child of an alcoholic would predict membership in the drinking group for college women. The drinking group is comprised of the participants who reported alcohol use, but drink less than 5 or more drinks at a time. Their alcohol use was calculated from Item 15 on the Core, which asks the average number of drinks

the participant consumes in a week.

Thirty-six women fell into this group. Twenty reported drinking one drink per week, 7 reported drinking on average 2 drinks per week, and 9 reported drinking 3 drinks per week.

The COA group was comprised of 23 participants who scored 6 or more on the Children of Alcoholics Screening Test.

One variable, BSRI Undifferentiated, failed the tolerance level of .001 for use in the discriminant function analysis. Two canonical discriminant functions were derived $\chi^2(14) = 23.77, p = .04$; and $\chi^2(6) = 6.5, p = .36$. The first function accounted for 76.2% of the variance, the second for 23.8%. The standardized canonical discriminant functions are reported in Table 11.

Table 6

Standardized Canonical Discriminant Function Coefficients for Depression

	Function 1
RSEI	-.829
BDI	.274
BSRI M	.899
BSRI F	.974
BSRI A	1.02
BSRI U	1.61
CAST	.580

Note. N = 123. RSEI = Rosenberg Self-Esteem Inventory (higher scores indicate lower self-esteem). BDI = Beck Depression Inventory (higher scores indicate greater levels of depression). BSRI = Bem Sex-Role Inventory M = masculine, F = feminine, A= androgynous, U= undifferentiated. CAST= Children of Alcoholics Screening Test (scores over 6 indicate COA status).

Table 7

Structure Matrix for Derived Function for Depression

	Function 1
BSRI U	.441
CAST	.409
BDI	.164
BSRI M	-.124
RSEI	-.048
BSRI F	.038
BSRI A	.038

Note. N=123. CAST = Children of Alcoholics Screening Test (scores over 6 indicate COA status), BDI = Beck Depression Inventory (higher scores indicate greater levels of depression). RSEI = Rosenberg Self-Esteem Inventory (higher scores indicate lower self-esteem). BSRI = Bem Sex-Role Inventory M = masculine, F = feminine, A = androgynous.

Table 8

Standardized Canonical Discriminant Function Coefficients for Bem Sex-Role
Stereotypes

	Function 1	Function 2
CAST	.073	.886
BDI	1.559	-.248
RSEI	-1.675	.131
BSRI M	.712	-.677
BSRI F	1.310	.570
BSRI A	.759	.492

Note. N = 123. CAST = Children of Alcoholics Screening Test (scores over 6 indicate COA status), BDI = Beck Depression Inventory (higher scores indicate greater levels of depression). RSEI = Rosenberg Self-Esteem Inventory (higher scores indicate lower self-esteem). BSRI = Bem Sex-Role Inventory M = masculine, F = feminine, A = androgynous.

Table 9

Structure Matrix for Derived Functions for Bem Sex-Role Stereotypes

	Function 1	Function 2
BSRI F	-.799*	-.125
BSRI M	.49*	.30
RSEI	.25	-.55*
BSRI A	-.12	.49*
BDI	.01	.46*
CAST	-.02	.29*

Note. N = 123. BSRI = Bem Sex-Role Inventory F = feminine, M = masculine. RSEI = Rosenberg Self-Esteem Inventory (higher scores indicate lower self-esteem). BSRI = Bem Sex-Role Inventory, A = androgynous. BDI = Beck Depression Inventory (higher scores indicate greater levels of depression). CAST = Children of Alcoholics Screening Test (scores over 6 indicate COA status). *Largest absolute correlation between each variable and any discriminant function.

Table 10

Functions at Group Centroids for Derived Functions for Masculine Sex-Role Stereotype

Binge-Drinking Episodes	Function 1	Function 2
	.48	-.39
3-5 times	-1.00	3.22
6-9 times	.56	1.50
10 or more times		

Note. N=123. Unstandardized canonical discriminant functions evaluated at group means. 3-5 times = drinking five or more drinks 3-5 times in the past 2 week. 6-9 times = drinking 5 or more drinks 6-9 times in the past 2 weeks. 10 or more times = drinking 5 or more drinks 10 or more times in the past 2 weeks.

The first function was reliable and COA status appears to predict membership in the drinking group. Being a child of an alcoholic did predict membership in the drinkers group. Table 12 reports the standardized canonical correlations for the two functions. Table 13, the structure matrix, reports the pooled within-groups correlations between the discriminating variables and the standardized canonical discriminant functions.

Table 11

Summary of Canonical Discriminant Functions

Function	Eigenvalue	% of Variance	Canonical Correlation
1	.77*	76.2	.66
2	.24*	23.8	.44

Note. *First three canonical discriminant functions were used in the analysis.

Table 12

Standardized Canonical Correlation for Derived Functions for Children of Alcoholics

	Function 1	Function 2
CAST	.96	.45
BDI	.20	-.15
RSEI	-.69	.04
BSRI M	.42	.34
BSRI F	-.18	.96
BSRI A	.34	-.10
BSRI U	.48	.85

Note. N = 123. CAST = Children of Alcoholics Screening Test (scores over 6 indicate COA status), BDI = Beck Depression Inventory (higher scores indicate greater levels of depression). RSEI = Rosenberg Self-Esteem Inventory (higher scores indicate lower self-esteem). BSRI = Bem Sex-Role Inventory M = masculine, F = feminine, A = androgynous. U = Undifferentiated

Table 14

Functions at Group Centroids for Derived Functions for Children of Alcoholics

Core 15 Ave. # drinks/wk	Function 1	Function 2
1	-.47	-.32
2	-.51	.91
3	1.46	1.29

Note. N = 123. Unstandardized canonical discriminant functions evaluated at group means. 1= 1-2 drinks per week, 2 = 3-4drinks per, 5 = 5 or more drinks per week.

Exploratory Analysis

The data that was collected allowed the investigator to examine the relationships between the negative consequences associated with alcohol use and problematic behaviors, such as cigarette smoking. The Core Alcohol and Drug Survey included a list of negative consequences associated with alcohol use from hangovers and missed classes to suicidal ideation, and suicide attempts.

In order to examine this research question the investigator reported and evaluated the intercorrelational matrix (Table 15). The zero order correlation was interpreted for significance using the .05 and .01 level of significance.

Significant positive correlation between age of first use of alcohol and age of first tobacco use was found ($r = .21$, $p = .01$). The earlier these women started smoking, the earlier they started to drink alcohol.

Significant positive correlations were found between injuries sustained while using alcohol and depression ($r = .15, p = .05$), low self esteem ($r = .17, p = .05$), suicidal ideation ($r = .38, p = .01$), driving under the influence of alcohol ($r = .31, p = .01$), and unwanted sexual contact ($r = .58, p = .01$). The more serious negative consequences of alcohol use are related to each other.

Driving under the influence of alcohol was almost perfectly correlated with suicidal ideation ($r = .91, p = .01$). Drunk driving and thinking of dying appears to be very closely associated with each other for the women in the present study. While only four reported being arrested for driving while intoxicated, 28 of the 123 participants reported driving under the influence of alcohol. Consider this in the light of the almost constant stream of "Don't Drink and Drive Messages" these women have received since grammar school.

There were significant positive correlations between being injured while using alcohol ($r = .58, p = .01$), depression ($r = .19, p = .05$), low self-esteem ($r = .30, p = .01$), suicidal ideation ($r = .36, p = .01$), and driving under the influence of alcohol ($r = .32, p = .05$). This certainly should be investigated further. Drinking alcohol, driving a car after drinking, getting hurt, depression, and low self-esteem appear to go hand in hand.

There were significant positive correlations between COA status and low self-esteem ($r = .16, p = .05$), suicidal ideation ($r = .22, p = .01$), driving under the influence of alcohol ($r = .18, p = .05$), unwanted sexual contact ($r = .15, p = .05$), and psychological masculinity ($r = .22, p = .01$). The children of alcoholics reported greater frequency and severity associated with their drinking, while not reporting the highest levels of alcohol use.

Table 13

Exploratory Analysis

	AGE	ALC	AGE	HURT	BDI	RSEI	IDEA	DRIVE	SEX	BSRI	M	COA
	SMOKE											
	UNMEAN											
AGE	1.00											
ALC												
AGE	.214**	1.00										
SMOKE												
HURT	.007	.026	1.00									
BDI	-.056	.044	.152*	1.00								
RSEI	-.026	.070	.187*	.609**	1.00							
IDEA	-.044	.053	.386**	.076	.119	1.00						
DRIVE	-.101	.059	.317**	-.020	.030	.916**	1.00					
SEX	-.033	.103	.586**	.195*	.306**	.362**	.323*					
UNWANT												
BSRI M	-.053	.086	.002	-.158*	-.064	-.019	-.137	.027	1.00			
COA	.019	.056	.090	.140	.165*	.223**	.183*	.151*	.223**	1.00		

Note: N=123 Age of first use of alcohol (AGE ALC), age of first tobacco use (AGE SMOKE), been injured while under the influence of alcohol (HURT) Beck Depression Inventory (BDI), Rosenberg Self-Esteem Inventory (RSEI), suicidal ideation (IDEA), unwanted sexual contact (SEX UNWANT), stereotype masculine (BSRI M), Child of an alcoholic (COA.)

CHAPTER V

Discussion

The purpose of the present study was to determine if a relationship existed between the frequency and amount of alcohol use and being a child of an alcoholic (COA status), depression, low self-esteem, and sex-role stereotypes for college women. Further, it was hypothesized that scores on the various instruments could predict membership in a group, determined by frequency and amount of alcohol use.

Volunteer participants completed the Core Alcohol and Drug Survey, the Children of Alcoholics Screening Test, the Beck Depression Inventory, the Rosenberg Self-Esteem Inventory, and the Bem Sex-Role Inventory. The results were analyzed utilizing SPSS Version 9. Correlational analysis and Discriminant Function Analysis were conducted. Correlations were found to exist between variables

Scores on the Core Survey were used to form drinking groups: (a) non-drinker, no alcohol use in the past two weeks; (b) drinker, alcohol use in the past two weeks less than 5 drinks at a time no more than one time a week; (c) binge-drinker, five or more drinks at a time; and (d) frequent binge-drinker, five or more drinks in a sitting two or more times a week. A binge is five or more drinks in a sitting, and frequent binge-drinking is consuming five or more drinks two or more times in the past two weeks.

Hypotheses of Study

Hypothesis one stated that there would be a relationship between how much and how often a female college student used alcohol and the variables under consideration. Being a child of an alcoholic was associated with being a drinker, using alcohol, but not

drinking five or more drinks at a time. There were some relationships between some of the other variables, most notably depression and self-esteem, but not between the variables and level of alcohol use.

Hypothesis two stated that the participants with the lowest self-esteem would be the women who used the most alcohol, most often. This was not supported.

Hypothesis three was that the participants who were the most depressed would drink five or more drinks one time a week. This was not supported.

Hypothesis four was that the women who were stereotypically masculine would drink five or more drinks in a sitting two or more times a week. This was not supported.

Hypothesis five was that the women who were children of alcoholics would be drinkers, using alcohol, but not drinking five or more drinks at a time. There was support for this hypothesis.

The hypotheses of the present study suggested that being a child of an alcoholic, depression, self-esteem, and sex-role stereotypes would predict membership in drinking categories. The first four hypotheses were not supported, and the fifth hypothesis was supported. Despite ample power and sample size, low self-esteem and depression did not predict membership in a drinking group. Although there was a trend toward psychological masculinity predicting membership in the frequent binge-drinking group, this was not statistically reliable on the Discriminant Function Analysis. Being a child of an alcoholic did predict membership in Group 2, the drinking group. This group was comprised of those participants who reported alcohol use, but did not report consuming five or more drinks in a sitting.

Factors Related to Theory and/or Research Issues

In order to put the results of the present study into context and to proceed logically, the findings will be discussed in terms of COA and non-COA participants. The majority of the binge-drinkers were not children of alcoholics, yet exploratory analysis suggested that the children of alcoholics were reporting a greater number and greater severity of negative consequences associated with their alcohol use.

Basically, on the one hand, the frequent binge-drinkers appear to be participating in a psychosocial phenomenon of binge-drinking on college campuses across the United States (Wechsler et al., 1995), not fueled by depression, low self-esteem, sex-role stereotypes, or by being a child of an alcoholic. College students want to fit into their peer group and act in accordance with their peers' expectations and behaviors. Perhaps binge-drinking is viewed as deviant by the larger society, but college students may socially learn and continue abusive drinking in response to peer groups that provide models and rewards for such actions and maintain a definition of it that is desirable (Perkins, 1995). On the other hand, the children of alcoholics are not the binge-drinkers but are reporting more depressive symptoms, lower self-esteem, and being psychologically masculine. These appear to be distinct groups with distinct problems; the binge-drinkers create problems for others, the COA's create problems for themselves. The bingers are "acting out"; the COA's are "acting in" (Nolen Hoeksema, 1990). This information can assist college administrators and mental health professionals in dealing with both groups on college campuses, using leverage with the former and creating opportunities for growth and insight for the latter.

Yet the influences of peers in terms of what those peers actually think and do is only

part of the problem. What students believe to be the attitudes and behaviors of their peers is just as crucial and may have independent influence on college student drinking. Indeed, the strongest effect of peers may occur through the impression one develops of peer norms, but that perception may be significantly distorted for many students. Wesley Perkins' research in a variety of college settings, including large universities and small colleges and in different regions of the United States, has found that most students do not accurately perceive the real norms regarding peer alcohol use (Perkins & Berkowitz, 1996). Instead, students tend to perceive an exaggerated level of use and more permissive attitudes than actually exist. This phenomenon of misperceptions does not mean that alcohol abuse is not a major problem in most colleges. The crucial point is that the actuality of widespread alcohol abuse on many campuses may be fueled, at least in part, by some students thinking that their peers are even heavier users than they are and that their peers hold even more permissive attitudes than is the reality. Theoretical explanations for the emergence and persistence of misperceptions on college campuses have linked this problem to social conversation mechanisms in peer groups and psychological attribution processes (Perkins, 1994) and to theories of pluralistic ignorance.

Of the 123 study participants 18.7% ($n = 23$) of the sample were children of alcoholics. These students were drinkers, had higher levels of depression than other study participants, and were psychologically masculine. The study participants who were children of alcoholics, although not consuming as much alcohol as the binge- drinkers and frequent binge-drinkers, had as many and as severe negative experiences as the

frequent binge drinkers. These findings converge with recent research (Pullen, 1994; Russel et al., 1985).

The non-COA women in this study tended to demonstrate acceptable levels of self-esteem and reported little in terms of depressive symptoms, regardless of how much they drank. These women, the binge-drinkers and frequent binge-drinkers, are not like the alcoholic women studied by Sorrell et al.(1993) and Silvia et al. (1988). The alcoholic women in those studies had higher levels of depression and lower levels of self-esteem.

Like the COA participants in the Pullen (1994) study, which included men and women, there was a correlation between family alcohol abuse, self-esteem, depression, and student alcohol use. College men in general drink more alcohol than college women do. Sons of alcoholic fathers are more likely to become alcoholics than their non-COA counterparts. Perhaps the exclusion of men in the present study allowed for a clearer view of the women who are children of alcoholics. Although they tend to be drinkers, they are not the binge-drinkers or frequent binge-drinkers. Why is this?

If the COA's in the present study are heading toward alcoholism, it appears as if they are in the correct developmental stage in terms of the progression of alcoholism. They drink and when they drink they get into trouble. They can look at others around them, and perhaps their own parents, and observe that they do not consume as much alcohol as others do. This can feed denial, "I don't drink as much as others do, I do not have a problem."

If the binge-drinkers and frequent binge-drinkers are not alcoholic women, they will mature out of the college style binge-drinking, if they survive their college years. The frequent binge-drinkers in the present study were experiencing negative consequences in

greater number and greater severity than the other groups.

Like the findings in the present study, Kashubeck and Christensen (1995) found that COA college students had higher levels of depression than do non-COA's. Ashby, Mangine, and Slaney (1995) found that COA students tend to procrastinate more, have higher levels of anxiety, and have more difficulty forming healthy relationships than do their non-COA counterparts. Their study also supported previous research that COA's exhibit higher levels of perfection-seeking behaviors. Garbarino and Strange's (1993) study of COA college students found that many have a higher propensity for emotional and behavioral concerns, such as career indecision, substance abuse, and self-deprecation than students who do not come from alcoholic family systems.

If this list of characteristics is not already alarming, add the factor that alcoholism is often a cycle that continues from one generation to the next (Wholey, 1988). With parents as role models for their children, it is understandable why this vicious cycle continues. Unfortunately, many COA's only know the dynamics of the dysfunctional family environment that they grew up in, and therefore they tend to follow the same patterns of their parents. This pattern can manifest itself through abusing alcohol as adults or entering relationships with alcoholic partners. The difficulty in breaking this cycle begins with coming to the painful realization that this alcoholic environment is not normal, healthy, or functional. Overall, as Cutler and Radford (1999) found, it is critical for college personnel to not be blinded by or ignore the effects of the family environment that students bring with them to college. COA students may have deleterious coping mechanisms and may make their way to the Dean's office for discipline concerns; to the counseling center for emotional, physical, or psychological issues; or worse get no help at

all. With the increase in research on COA's and the dynamics of alcoholic family environments, it is imperative that college personnel use this information for staff training and for developing campus resources. Losing students in their passage to college life is avoidable. College personnel can address the family's influence in an effort to foster more successful adjustments to college life for COA students.

Limitations of the Present Study

The limitations of this study include those associated with using a volunteer sample and the nature of self-reported information. The ability to generalize beyond this sample is limited to those institutions of similar make-up. Having the national Core Survey data provides an opportunity to compare the women in this study with women across the nation in terms of the specific responses to the Core Alcohol and Drug Survey, the same is not true for the other instruments utilized in the present study.

Use of the long form of the Bem Sex Role Inventory may be problematic in terms of vocabulary level even in college students. Students questioned the primary investigator about the meanings of some of the words used in the BSRI while filling out the assessments. This could be especially problematic for participants whose first language is not English.

A question should have been asked about sorority membership to determine if sorority membership was associated with drinking levels. Although some of the study participants were sorority pledges and members this was not a question on the Core Survey Form.

Obtaining a large sample of women who are children of alcoholics would be an

interesting research opportunity. This presents problems for a researcher with a limited pool of participants but would be extremely interesting to this investigator. Naturally, other variables not controlled for might have accounted for the results of this study. Follow up studies should control for concomitant psychiatric disorders and include a test examining the level of functioning of the participants. Attachment to parents is an important issue for college students and should be considered in future research.

Research Implications

Replicating the present study with women at a public institution of higher education may produce similar results, but would be worthy of investigation. Including women who are 21 and over, entering the realm of legal drinking, also at the other end of the continuum, to obtain permission to question those of high school age, might give a glimpse of the status of college binge-drinkers in their formation.

A qualitative investigation of high and low functioning binge-drinking college women would be of interest, because unlike men, the women in the present study did not show a relationship between the amount they drank and their grade point averages.

Overall study participants in the present study exhibited low levels of depression and good self-esteem. The COA group ($n = 23$) reported higher levels of depression and lower levels of self-esteem. They were also likely to be psychologically sex-role typed as masculine. Might this make them less likely to seek help? This could be investigated further.

The finding that children of alcoholics were drinkers certainly fits developmental theory concerning the progression of alcoholism. Being the child of an alcoholic may

increase the likelihood of developing alcoholism. Even though not reporting the highest levels of alcohol use in terms of frequency and amount, the COA women in the present study reported more negative consequences associated with their alcohol use than the other groups. Exploring the relationship between psychological masculinity in college women children of alcoholics and help-seeking behavior should be studied. The college adjustment process for COA's is related to many facets of their family dynamics, and additional research is needed to determine how their experiences will affect their adjustment to college.

In the present study the frequent binge-drinkers reported the highest levels of unwanted sexual contact. A further area of investigation would be to determine how often college women who report frequent binge-drinking experience sexual contact that is not wanted, and if they are taking any precautions to prevent Sexually Transmitted Diseases (STDs).

Norm Misperception Theory addresses the problem of binge-drinking, which continues to be rampant on college campuses across the United States. The only approach that has empirical support in reducing binge-drinking is the theory put forth by Perkins and Berkowitz (1986) called the Norm Misperception Theory. The present study supports their findings. Of the 123 participants, 75 (65%) did not report binge-drinking in the past two weeks, and 44 participants (35.8%) stated that on average they drink no alcohol each week. Thirty-five percent of those surveyed are binge-drinking. These were not the women experiencing elevated levels of depression and lower self-esteem.

Many mental health professionals tend to assume that alcohol is used to medicate painful feelings. Frequent binge-drinkers apparently are students who are joining in the

psychosocial phenomenon of binge-drinking, which is fueled by the misperception that everyone here does it. In the present study, 61% of the participants did not binge-drink in the past two weeks, and 35.8% stated that on average they had no drinks per week. They stated that they believed 56% of them drank 3 times a week. That is norm misperception. This suggests that the women in the present study believe 0.8% of students are nondrinkers, whereas by their own report 35% are nondrinkers. In the present study, 80% of those reporting alcohol use drink five or fewer drinks per week. Perkins' model of correcting norm misperception as a method to reduce binge-drinking is perhaps the model of choice for college campuses to follow. The Norm Misperception Theory appears to hold up in the recent literature and in the present study. Implementing research to examine the effect of correcting this misperception on the binge-drinking rate could be beneficial.

There already exists a critical mass of students who do not binge-drink. There are several studies indicating that correcting the misperception of the drinking norm might result in reduction of the binge-drinking rate.

Theory related to the development of alcoholism may have influenced the results of this study. The COA participants may be underreporting their alcohol use and living in an alcoholic family system may foster denial of one's problem behaviors.

COA participants experiencing negative consequences associated with their alcohol use, may be early stage alcoholics. Although many studies support the hypothesis that female alcoholics report higher levels of depressive symptomology, college counselors' anecdotal reports suggest that students mandated to counseling for alcohol policy violations, state that they believe drinking five or more drinks rapidly is fun. Non-COA

binge-drinkers in this study were not depressed women. The present study did not find correlations between frequency and amount of drinking and scores on the BDI. Women, in this age group 18 to 20 years old, who are college students, are not reporting elevated BDI scores.

Clinical Implications

Although COA status was one of the main elements in this investigations, it was a surprise that it weighed so heavily in the findings. Perhaps there was a tendency on the part of the investigator to think of the Adult Children of Alcoholics movement as over. This group appears to be an under-served population, but perhaps this can be explained through further research.

Alcohol education and prevention efforts while not reducing the binge-drinking rate could be utilized to mobilize the critical mass of students who do not binge drink. Screening clients for COA status continues to be good practice. This group is at risk for a variety of problems.

In recent decades cigarette smoking has gone from sophisticated and desirable to becoming increasingly unacceptable. This process involved media campaigns, taxation, and non-smokers joining together to make their presence felt. Since a critical mass of students who do not binge drink already exists, it remains for them to be mobilized to reduce the binge-drinking rate further and to improve the quality of campus life and increase student success. Norm Misperception Theory is being utilized in New Jersey today and the results need to be evaluated.

There are interventions that can be utilized across the college and university

campuses to improve the self-esteem of COA's. Also, since these are children of alcoholic parents they have an increased risk for developing the disease of alcoholism. Being self classified as drinkers in the present study places them at the expected developmental point on the alcoholism progression continuum. For COA students psychological masculinity might indicate they would be less likely to seek help but having self-help support groups, Al-Anon family groups, therapeutic groups, and individual counseling, workshops to improve self-esteem and increase help-seeking behavior could increase the likelihood (Cutler & Radford, 1999).

Even with the research to date on COA college students being inconclusive, researchers and clinicians can be proactive and sensitive to the individual circumstances of each COA whom they encounter or include in studies. Every student, even those from healthy families, has some degree of difficulty in adjusting to the college environment. The work of developing competence, purpose, and identity may be more difficult for COA (Cutler & Radford, 1999).

Researchers, college administrators, counselors, academic advisors, and faculty can be a powerful influence on the COA students' adjustment to the college experience. Each COA student has her/his own family backgrounds and dynamics. One cannot assume that all COA's will need the same type of support and resources. Avoiding stereotypes is one step in the right direction to helping these students (Cutler & Radford, 1999).

Many COA's have been told not to talk (Cutler & Radford, 1999). These COA students have been encouraged to deny dysfunctional behaviors and to keep secrets about their family environments. If one has been discouraged from talking and feeling, then

how can one ask for help? This is a challenge researchers may investigate. There can be an awareness of the difficulty these students have seeking help. Being aware of campus resources, such as counseling services, support groups, educational student groups, and programs that are designed to help the COA population is the responsibility of all who come in contact with these students on university and college campuses.

Sensitivity is crucial to help COA students. Dysfunctional coping skills have been normal for many years and have served these students in the past. College counselors can assist students in understanding how their family-of-origin experiences are affecting their transitions to college.

Other resources available to COA's having difficulty adjusting to college life may include support groups on and off campus, such as Alcoholics Anonymous, Adult Children of Alcoholics, eating disorder support groups, and sexual assault and/or abuse support groups.

Summary

In the present study COA's were not likely to be nondrinkers. They were apt to be drinkers. COA's were more likely than non-COA's to have depressive symptoms and lower self-esteem. Depression scores were significantly correlated with CAST and RSEI scores, but not with drinking groups. COA's were apt to be psychologically masculine on the BSRI. Being a COA predicted membership in the drinker group.

COA status was significantly correlated with being a drinker. This seems logical. If alcoholism is a progressive process, developmentally potential alcoholics at this age (18-20) might identify themselves as drinkers.

These finding, in particular the perception of the amount of alcohol use, support the recent and ongoing work of Perkins and others. They propose that alcohol abuse among college students has been highly linked to the influence of peers in the peer intensive environment of college campuses (Perkins & Berkowitz, 1991; Perkins, 1995; Perkins & Wechsler, 1996).

Out of 123 respondents, 75 reported not drinking at all during the last 2 weeks. Thirty-three reported no alcohol use in the past 30 days. Sixteen participants reported never having had alcohol. This finding is important for the reason that it supports the work of Perkins and others who consider binge-drinking to be a psychosocial phenomenon fired by self-fulfilling prophecy due to a misperception of drinking norms. The clear minority of the women surveyed is doing the majority of the drinking and is experiencing the negative consequences. This small group of frequent binge drinkers was not reporting significant levels of depression or low self-esteem, and this group, group D, was not likely to be children of alcoholics (COA's), and there was no significant correlation with sex-role stereotypes as reported on the BSRI.

In the present study participants expressed the belief on item 19b on the Core (How often do you believe the average student uses alcohol?) that 1.7% of students abstain from alcohol. They reported 35.8% of them abstained from alcohol.

This suggests that the women in the present study believe 0.8% of students are nondrinkers, whereas by their own report 35% are nondrinkers. In the present study 80% of those reporting alcohol use drink five or fewer drinks per week. Perkins (1995) model of correcting norm misperception as a method to reduce binge-drinking is perhaps the model of choice for college campuses to follow. The norm misperception theory appears

to hold up in the recent literature and in the present study. Implementing research to examine the effect of correcting this misperception on the binge-drinking rate could be beneficial.

Conclusions

It seems apparent from the results of the present study that children of alcoholics are experiencing significantly more negative consequences from their drinking even when they are not consuming as much alcohol as others do. From both a clinical and research perspective this group is at risk, and college administrators and clinicians need to develop the means to identify and provide specialized interventions that can help these college women deal with their childhood experiences.

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